

Arsenic Questions and Answers

1. What is the action today?

EPA today is taking action to reduce public health risks from arsenic in drinking water by revising the current federal standard from 50 parts per billion (ppb) to 5 ppb. Community water systems (serving most cities and towns, apartments, and mobile home parks with their own water systems) will be required to meet the new standard.

EPA is also taking comment on regulatory options of 3 ppb (the technically feasible level), 10 ppb, and 20 ppb, taking benefits and costs into account.

EPA is also proposing a drinking water public health goal of zero for arsenic. There is no current health goal for arsenic. The health goal is the level below which no known or anticipated health effects would occur. If there is evidence that a chemical may cause cancer, and there is no dose below which the chemical is considered safe, the health goal is set at zero.

At the same time, EPA is proposing that public water systems that serve at least 25 of the same people more than 6 months per year be required to notify people served when their arsenic levels exceed the new drinking water standard of 5 ppb. Examples of these systems include schools, nursing homes, factories, and churches.

2. Why is EPA revising the existing standard for arsenic in drinking water?

The current standard of 50 ppb does not adequately protect public health. It was set by EPA in 1975, based on a Public Health Service standard originally established in 1942. A March, 1999, report by the National Academy of Sciences concluded that the current standard “requires downward revision as promptly as possible.”

The Safe Drinking Water Act Amendments signed by President Clinton in 1996 required EPA to propose a new arsenic standard by January 1, 2000, and to promulgate a final rule by January 1, 2001.

3. Why is EPA taking public comment on proposed standards of 3 ppb, 10ppb, and 20ppb?

EPA is taking comment on other proposed levels for arsenic which are below the current standard of 50 ppb, and for which the Agency has prepared cost estimates. EPA will consider comments on these other levels as the Agency sets a final standard to protect against health risks, while weighing costs.

EPA is for the first time proposing a drinking water standard (5 ppb) that is higher than the technically feasible level (3 ppb). The Safe Drinking Water Act (SDWA) requires EPA to determine the health goal, then to set the standard as close to the goal as technically feasible. The 1996 Amendments to SDWA for the first time granted EPA discretionary authority, if it determines that the technically feasible level does not justify the costs, to adjust the standard to a level “that maximizes health risk reduction benefits at a cost that is justified by the benefits.”

4. What health effects are associated with exposure to arsenic in drinking water?

EPA’s proposed drinking water regulation addresses the long-term, chronic effects of exposure to relatively low concentrations of arsenic in drinking water, including:

- Cancer Effects: skin, bladder, lung, and prostate cancer.
- Non-cancer effects: skin pigmentation and keratosis (callus-like skin growths seen earliest and most often), gastrointestinal, cardiovascular, hormonal (e.g., diabetes), hematological (e.g., anemia), pulmonary, neurological, immunological, reproductive/developmental function.

Although acute exposures to high doses of arsenic can cause adverse health effects, such exposures do not occur from public water supplies in the U.S. at the current standard of 50 ppb.

5. What are the benefits of this rule?

Reducing arsenic from 50 ppb to 5 ppb will provide additional protection to at least 22.5 million Americans and will prevent about 20 cases of bladder cancer approximately 5 deaths from bladder cancer per year. EPA expects that arsenic-related lung cancers (that could number as many as two to five times the number of bladder cancers) and cardiovascular diseases will be reduced with a lower standard as well.

Estimated values of benefits of this rule range from as high as \$90 million for bladder cancer to \$384 million for lung cancer.

6. How many people and how many systems will be affected by this rule?

The new standard will primarily affect small systems with underground sources of drinking water. The new standard of 5 ppb will apply to 54,000 community water systems serving 254 million people. EPA estimates that 12 percent of these systems -- serving 22.5 million people -- will have to take action to reduce the level of arsenic in their water to 5 ppb. Ninety-four percent of these affected systems serve fewer than 10,000 people each.

At the proposed level of 5 ppb, ~ 2,400 non-community systems such as schools and hospitals will need to notify ~ 2.4 million customers when arsenic exceeds 5 ppb.

7. Where does arsenic occur?

While many systems do not have detected arsenic in their drinking water, there may be “hot spots” with systems that have higher than predicted occurrence levels for the area. More water systems in western states that depend on underground sources of drinking water have naturally-occurring levels of arsenic at levels greater than 10 ppb than in other parts of the U.S. Parts of the Midwest and New England have some systems whose arsenic levels range from 2-10 ppb.

8. What are the sources of arsenic contamination in water?

Arsenic can contaminate drinking water as a result of either natural or human activities. Arsenic occurs naturally in rocks and soil, water, air, plants, and animals. Volcanic activity, eroding rocks and minerals, and forest fires are natural sources that can release arsenic into the environment. Approximately 90 percent of U.S. industrial arsenic is used as a wood preservative, but arsenic is also used in paints, drugs, dyes, soaps, metals and semi-conductors. Burning fossil fuels, paper production, cement and glass manufacturing, and mining can also release arsenic.

9. How much will this rule cost?

For systems that will need to take corrective action to comply with the new rule, average annual household costs are estimated to increase by \$28 for Americans served by large systems (serving over 10,000 people each) and \$85 for those served by small systems (serving fewer than 10,000 people each).

At the proposed standard of 5 ppb, total costs to water systems to comply with the proposed arsenic rule will range from \$379 million to \$445 million per year. Over 98 percent of these total costs will come from adding treatment equipment and chemicals, and oversight of the new treatment.

10. Is there funding associated with this rule?

Since 1996, the Drinking Water State Revolving Loan Fund has made over \$3.6. billion available for loans to help water systems improve their infrastructure. This program has now made over 1000 loans. EPA also provides funding to States that have primary enforcement responsibility for their drinking water programs through the Public Water Systems Supervision (PWSS) grants program. Other federal funds are available through Housing and Urban Development’s Community Development Block Grant Program, and the Rural Utilities Service of the U.S. Department of Agriculture.

11. How were stakeholders involved in the development of this rule?

EPA used an extensive stakeholder consultation process to develop the proposed arsenic rule, beginning in 1997. Public meetings were held in Washington, DC, San Francisco, and San Antonio. The National Drinking Water Advisory Council received semi-annual updates and provided input on the rule at its public meetings. EPA staff provided briefings and solicited input on the rule at conferences hosted by stakeholders, and in meetings with water system associations and environmental groups. In addition, EPA consulted with small businesses directly through a small business advocacy review process.

12. Where can the public get more information about this proposed rule?

For general information on arsenic in drinking water, contact the Safe Drinking Water Hotline, at (800) 426-4791, or visit the EPA Safewater website at <http://www.epa.gov/safewater> or the arsenic website at <http://www.epa.gov/safewater/arsenic.html>.